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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR          | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/655,093      | 09/05/2000  | Hemang Chamakuzhi Subramanian | JP920000177US1      | 8256             |

39903 7590 05/19/2004

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EXAMINER

OSMAN, RAMY M

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2157     | 10           |

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/655,093

Applicant(s)

SUBRAMANIAN, HEMANG  
CHAMAKUZI

Examiner

Ramy M Osman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on February 23, 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-8,10-14,16,17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,6-8,13 and 14 is/are rejected.
- 7) ☒ Claim(s) 3-5,10-12,16,17 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Status of Claims*

1. This communication is responsive to the amendment filed on February 23, 2004 where applicant amended claims 1,8,14 and 16, and cancelled claims 2,9,15 and 18. A new non-final action is being attached with this communication in view of newly found references. Claims 1,3-8,10-14,16,17 and 19 are pending.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,6,7,8,13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aguilar et al. (U.S. Patent No. 6,490,677) in view of Bamforth et al. (U.S. Patent No. 6,330,617) in further in view of Takahashi (U.S. Patent No. 6,574,229) in further view of Gigliotti (U.S. Patent No. 6,393,458).

4. In reference to claims 1,8 and 14, Aguilar teaches a computing system comprising of plurality of clients and boot servers of a particular type, and single DHCP/PXE server, a method in said DHCP/PXE server for allocating a boot server to each requesting client (column 4 lines

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45-67 & column 5). Aguilar does not teach a method, system and computer program in said DHCP/PXE server wherein the least loaded boot server is prioritized for service by:

Maintaining a boot Server Allocation Table (SAT) containing the existing client load count for each boot server. However Bamforth teaches server load table which contains load levels for each server for load balancing in a network (Summary, column 8 lines 25-67 and column 9). It would have been obvious to one having ordinary skill in the art to modify Aguilar by making the DHCP/PXE server perform load balancing operations by maintaining server load levels for allocating servers to requesting clients as per the teachings of Bamforth to redistribute system traffic to a server with a low load level so as to prevent overload of any one server.

Maintaining a Client Allocation Table (CAT) associating each client IP address with the corresponding boot server IP address. However Takahashi teaches maintaining a connection management table associating client addresses with server addresses (column 3 line 25 – column 4 line 20). It would have been obvious to one having ordinary skill in the art to modify Aguilar by making the DHCP server maintain client and boot server addresses as per the teachings of Takahashi for allocating boot servers to requesting clients in order to redistribute system traffic to a server with a low load level so as to prevent overload of any one server.

Prioritizing the boot servers by sorting said SAT in order of increasing load count whenever it is updated. However Bamforth teaches evaluating a load table for the least loaded server, and updating the load counts (Summary, column 8 lines 25-67 and column 9). While Gigliotti teaches ranking the load balance table from lowest to highest load levels (column 6 lines 37-67, column 7 and column 8 lines 30-50). It would have been obvious to one having ordinary skill in the art to modify Aguilar by making the DHCP server sort the load levels form

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lowest to highest and updating the load counts as per the teachings of Bamforth in further view of Gigliotti to redistribute system traffic to a server with a low load level so as to prevent overload of any one server.

Providing the IP addresses of the boot servers in the sequence of their listing in said SAT for access whenever a client requests the DHCP, wherein said SAT is updated to increment a particular boot server load count whenever that boot server sends an acknowledge (ACK) to a requesting client. However Bamforth teaches updating a table to increment the server load count whenever a server responds to a requesting client (column 8 lines 25-67 and column 9). While Pederson teaches providing IP addresses of servers in a table along with their load counts (column 3). It would have been obvious to one having ordinary skill in the art to modify Aguilar by making the DHCP server perform load balancing operations by providing boot server IP addresses in the order of their load information for allocating boot servers to requesting clients, and updating the table whenever a server responds to a client as per the teachings of Bamforth in further view of Pederson to consistently redistribute system traffic to a server with a low load level so as to prevent overload of any one server, and keeping the load levels up to date to accurately reflect server states.

5. Claims 6,7 and 13 do not teach or define any new limitations above claims 1,8 and 14, and are therefore rejected for similar reasons. Aguilar in view of Gigliotti in further view of Lassiter teach the computing system as described in claim 7 and is explained above.

***Allowable Subject Matter***

6. Claims 3,4,5,10,11,12,16,17 and 19 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

The following limitations if rewritten into all independent claims would distinguish the claims as allowable subject matter:

Wherein said CAT is updated to include an entry associating the client with a particular boot server IP address whenever a boot server sends an acknowledge ACK to the client.

Wherein said CAT is updated to remove an entry corresponding to a particular client whenever the DHCP refreshes it's IP addresses pool and discovers that said client is not available.

***Response to Amendment***

8. The examiner acknowledges the amended claims 1,8,14 and 16 filed on 2/23/2004.

9. Applicant amended the specification to overcome the minor informality and thus the examiner withdraws the objection to the specification.

***Response to Arguments***

10. Applicant's arguments with respect to claims 1,3-8,10-14,16,17 and 19 have been considered.

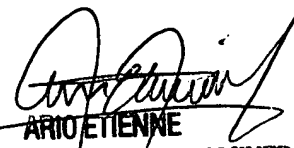
11. Applicants remarks regarding the claims are sufficient to overcome the prior-art references. A response to the remarks will not be given because they are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramy M Osman whose telephone number is (703) 305-8050. The examiner can normally be reached on Monday through Friday 9AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (703) 305-7562. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RMO  
May 6, 2004

  
ARIO ETIENNE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100